



A service of the National Library of Medicine
and the National Institutes of Health

My NCBI
[\[Sign In\]](#) [\[Reg\]](#)

All Databases PubMed Nucleotide Protein Genome Structure OMIM PMC Journals Bc

Search PubMed for (chimera) AND ("FSHA"[TIAB] OR "FSHA"[TIAB]) [Preview](#) [Go](#) [C](#)

Limits Preview/Index **History** Clipboard Details

About Entrez

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorials

New/Noteworthy E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation Matcher

Batch Citation Matcher

Clinical Queries

Special Queries

LinkOut

My NCBI

Related Resources

Order Documents

NLM Mobile

NLM Catalog

NLM Gateway

TOXNET

Consumer Health

Clinical Alerts

ClinicalTrials.gov

PubMed Central

- Search History will be lost after eight hours of inactivity.
- Search numbers may not be continuous; all searches are represented.
- To save search indefinitely, click query # and select Save in My NCBI.
- To combine searches use #search, e.g., #2 AND #3 or click query # for more options.

Search	Most Recent Queries	Time	Result
#3	Search (chimera) AND ("FSHA"[TIAB] OR "FSHA"[TIAB] OR "Follicle-stimulating hormone alpha subunit"[TIAB] OR "Follitropin alpha chain precursor"[TIAB] OR "FSH-A"[TIAB] OR "FSH-alpha"[TIAB])	23:11:27	<u>0</u>
#2	Search (chimera) AND ("FSHB"[TIAB] OR "FSHB"[TIAB] OR "Follicle-stimulating hormone beta subunit"[TIAB] OR "Follitropin beta chain precursor"[TIAB] OR "FSH-B"[TIAB] OR "FSH-beta"[TIAB])	23:10:21	<u>9</u>
#1	Search (chimer) AND ("FSHB" [TIAB] OR "FSHB" [TIAB] OR "Follicle-stimulating hormone beta subunit" [TIAB] OR "Follitropin beta chain precursor" [TIAB] OR "FSH-B" [TIAB] OR "FSH-beta" [TIAB])	23:10:12	<u>0</u>

[Clear History](#)

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

Oct 30 2006 07:27:22



A service of the National Library of Medicine
and the National Institutes of Health

My NCBI
[Sign In] [Reg]

All Databases PubMed Nucleotide Protein Genome Structure OMIM PMC Journals Bc

Search PubMed for (chimera) AND ("CGA" [TIAB] OR "CGA" [TIAB] O Preview Go C

Limits Preview/Index History Clipboard Details

About Entrez

Text Version

Entrez PubMed

Overview

Help | FAQ

Tutorials

New/Noteworthy

E-Utilities

PubMed Services

Journals Database

MeSH Database

Single Citation Matcher

Batch Citation Matcher

Clinical Queries

Special Queries

LinkOut

My NCBI

Related Resources

Order Documents

NLM Mobile

NLM Catalog

NLM Gateway

TOXNET

Consumer Health

Clinical Alerts

ClinicalTrials.gov

PubMed Central

- Search History will be lost after eight hours of inactivity.
- Search numbers may not be continuous; all searches are represented.
- To save search indefinitely, click query # and select Save in My NCBI.
- To combine searches use #search, e.g., #2 AND #3 or click query # for more options.

Search	Most Recent Queries	Time	Result
#5	Search (chimera) AND ("CGA" [TIAB] OR "CGA" [TIAB] OR "CG-alpha" [TIAB] OR "CG-ALPHA" [TIAB] OR "Choriogonadotropin alpha chain" [TIAB] OR "Chorionic gonadotrophin alpha subunit" [TIAB] OR "Follicle-stimulating hormone alpha chain" [TIAB] OR "Follitropin alpha chain" [TIAB] OR "FSHA" [TIAB] OR "FSH-alpha" [TIAB] OR "Glycoprotein hormones alpha chain precursor" [TIAB] OR "GPHa" [TIAB] OR "GPHa" [TIAB] OR "GPHA1" [TIAB] OR "GPHA-1" [TIAB] OR "GPHA 1" [TIAB] OR "HCG" [TIAB] OR "HCG" [TIAB] OR "LHA" [TIAB] OR "LHA" [TIAB] OR "LSH-alpha" [TIAB] OR "Luteinizing hormone alpha chain" [TIAB] OR "Lutropin alpha chain" [TIAB] OR "Thyroid-stimulating hormone alpha chain" [TIAB] OR "Thyrotropin alpha chain" [TIAB] OR "TSHA" [TIAB] OR "TSHA" [TIAB] OR "TSH-alpha" [TIAB])	23:13:05	34
#4	Search (chimer) AND ("CGA" [TIAB] OR "CGA" [TIAB] OR "CG-alpha" [TIAB] OR "CG-ALPHA" [TIAB] OR "Choriogonadotropin alpha chain" [TIAB] OR "Chorionic gonadotrophin alpha subunit" [TIAB] OR "Follicle-stimulating hormone alpha chain" [TIAB] OR "Follitropin alpha chain" [TIAB] OR "FSHA" [TIAB] OR "FSHA" [TIAB] OR "FSH-alpha" [TIAB] OR "Glycoprotein hormones alpha chain precursor" [TIAB] OR "GPHa" [TIAB] OR "GPHa" [TIAB] OR "GPHA1" [TIAB] OR "GPHA-1" [TIAB] OR "GPHA 1" [TIAB] OR "HCG" [TIAB] OR "HCG" [TIAB] OR "LHA" [TIAB] OR "LHA" [TIAB] OR "LSH-alpha" [TIAB] OR "Luteinizing hormone alpha	23:12:42	0

chain" [TIAB] OR "Lutropin alpha chain" [TIAB]
OR "Thyroid-stimulating hormone alpha
chain" [TIAB] OR "Thyrotropin alpha
chain" [TIAB] OR "TSHA" [TIAB] OR
"TSHA" [TIAB] OR "TSH-alpha" [TIAB])

- #3** Search (chimera) AND ("FSHA"[TIAB] OR 23:11:27 0
"FSHA"[TIAB] OR "Follicle-stimulating hormone
alpha subunit"[TIAB] OR "Follitropin alpha chain
precursor"[TIAB] OR "FSH-A"[TIAB] OR "FSH-
alpha"[TIAB])
- #2** Search (chimera) AND ("FSHB"[TIAB] OR 23:10:21 9
"FSHB"[TIAB] OR "Follicle-stimulating hormone
beta subunit"[TIAB] OR "Follitropin beta chain
precursor"[TIAB] OR "FSH-B"[TIAB] OR "FSH-
beta"[TIAB])
- #1** Search (chimer) AND ("FSHB" [TIAB] OR 23:10:12 0
"FSHB" [TIAB] OR "Follicle-stimulating hormone
beta subunit" [TIAB] OR "Follitropin beta chain
precursor" [TIAB] OR "FSH-B" [TIAB] OR "FSH-
beta" [TIAB])

[Clear History](#)

[Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)
[Department of Health & Human Services](#)
[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

Oct 30 2006 07:27:22

Refine Search

Search Results -

Terms	Documents
ippikoglou-efthimios.in.	2

Database:

US Pre-Grant Publication Full-Text Database
 US Patents Full-Text Database
 US OCR Full-Text Database
 EPO Abstracts Database
 JPO Abstracts Database
 Derwent World Patents Index
 IBM Technical Disclosure Bulletins

Search:

L6



Refine Search

Recall Text



Clear

Interrupt

Search History

DATE: Wednesday, November 01, 2006 [Purge Queries](#) [Printable Copy](#) [Create Case](#)

Set Name Query
side by side

Hit Count Set Name
result set

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ

<u>L6</u>	ippikoglou-efthimios.in.	2	<u>L6</u>
<u>L5</u>	ippikoglou-efthimios.in.	0	<u>L5</u>
<u>L4</u>	(chimer\$ or fusion) with follicle stimulat\$ hormone	82	<u>L4</u>
<u>L3</u>	L2 and (chimeric or fusion)	3331	<u>L3</u>
<u>L2</u>	follicle stimulat\$ hormone	6805	<u>L2</u>
<u>L1</u>	fsh\$ or follicle stimulat\$ hormone	10437	<u>L1</u>

END OF SEARCH HISTORY

Refine Search

Search Results -

Terms	Documents
alpha-fsh and beta-fsh	2

Database:

US Pre-Grant Publication Full-Text Database
 US Patents Full-Text Database
 US OCR Full-Text Database
 EPO Abstracts Database
 JPO Abstracts Database
 Derwent World Patents Index
 IBM Technical Disclosure Bulletins

Search:

L4



Refine Search

Recall Text



Clear

Interrupt

Search History

DATE: Wednesday, November 01, 2006

[Purge Queries](#)[Printable Copy](#)[Create Case](#)**Set Name Query**

side by side

*DB=USPT; PLUR=YES; OP=ADJ*L4 alpha-fsh and beta-fshL3 alpha-fsh abd beta-fshL2 L1 and (chimeric or fusion)and alpha-fsh abd beta-fshL1 5891855.pn.**Hit Count Set Name**

result set

2 L40 L30 L21 L1

END OF SEARCH HISTORY

uniprot ? 2

RESULT 4

FSHB_HUMAN

ID FSHB_HUMAN STANDARD; PRT; 129 AA.
AC P01225;
DT 21-JUL-1986, integrated into UniProtKB/Swiss-Prot.
DT 01-OCT-1989, sequence version 2.
DT 07-FEB-2006, entry version 69.
DE Follitropin beta chain precursor (Follicle-stimulating hormone beta subunit) (FSH-beta) (FSH-B).
GN Name=FSHB;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini; Hominidae;
OC Homo.
OX NCBI_TaxID=9606;
RN [1]
RP NUCLEOTIDE SEQUENCE [GENOMIC DNA].
RX MEDLINE=87246070; PubMed=2885163;
RA Watkins P.C., Eddy R., Beck A.K., Vellucci V., Leverone B.,
RA Tanzi R.E., Gusella J.F., Shows T.B.;
RT "DNA sequence and regional assignment of the human follicle-stimulating hormone beta-subunit gene to the short arm of human chromosome 11.";
RT DNA 6:205-212(1987).
RN [2]
RP NUCLEOTIDE SEQUENCE [GENOMIC DNA].
RX MEDLINE=89174746; PubMed=2494176;
RA Keene J.L., Matzuk M.M., Otani T., Fauser B.C.J.M., Galway A.B.,
RA Hsueh A.J.W., Boime I.;
RT "Expression of biologically active human follitropin in Chinese hamster ovary cells.";
RT J. Biol. Chem. 264:4769-4775(1989).
RN [3]
RP NUCLEOTIDE SEQUENCE [GENOMIC DNA].
RX MEDLINE=89014411; PubMed=3139991;
RA Jameson J.L., Becker C.B., Lindell C.M., Habener J.F.;
RT "Human follicle-stimulating hormone beta-subunit gene encodes multiple messenger ribonucleic acids.";
RT Mol. Endocrinol. 2:806-815(1988).
RN [4]
RP NUCLEOTIDE SEQUENCE [LARGE SCALE GENOMIC DNA].
RG Human chromosome 11 international sequencing consortium;
RL Submitted (SEP-2001) to the EMBL/GenBank/DDBJ databases.
RN [5]
RP PROTEIN SEQUENCE OF 19-129.
RX MEDLINE=89351581; PubMed=3151250;
RA Shome B., Parlow A.F., Liu W.K., Nahm H.S., Wen T., Ward D.N.;
RT "A reevaluation of the amino acid sequence of human follitropin beta-subunit.";
RT J. Protein Chem. 7:325-339(1988).
RN [6]
RP PRELIMINARY PROTEIN SEQUENCE OF 19-129.
RX MEDLINE=76120602; PubMed=1249074;
RA Saxena B.B., Rathnam P.;
RT "Amino acid sequence of the beta subunit of follicle-stimulating hormone from human pituitary glands.";
RT J. Biol. Chem. 251:993-1005(1976).
RN [7]
RP PRELIMINARY PROTEIN SEQUENCE OF 19-129.
RX MEDLINE=74262938; PubMed=4835136;
RA Shome B., Parlow A.F.;

RT "Human follicle stimulating hormone: first proposal for the amino acid
 RT sequence of the hormone-specific, beta subunit (hFSHb).";
 RL J. Clin. Endocrinol. Metab. 39:203-205(1974).
 RN [8]
 RP PRELIMINARY ASSIGNMENT OF DISULFIDE BONDS.
 RX MEDLINE=81021713; PubMed=6774759; DOI=10.1016/0005-2795(80)90084-7;
 RA Fujiki Y., Rathnam P., Saxena B.B.;
 RT "Studies on the disulfide bonds in human pituitary follicle-
 RT stimulating hormone.";
 RL Biochim. Biophys. Acta 624:428-435(1980).
 RN [9]
 RP DISULFIDE BONDS.
 RX MEDLINE=21392671; PubMed=11501762; DOI=10.1515/BC.2001.120;
 RA Amoresano A., Orru S., Siciliano R.A., De Luca E., Napoleoni R.,
 RA Sirna A., Pucci P.;
 RT "Assignment of the complete disulphide bridge pattern in the human
 RT recombinant follitropin beta-chain.";
 RL Biol. Chem. 382:961-968(2001).
 RN [10]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF MUTANT ALA-27.
 RX MEDLINE=21126564; PubMed=11222739; DOI=10.1210/me.15.3.378;
 RA Fox K.M., Dias J.A., Van Roey P.;
 RT "Three-dimensional structure of human follicle-stimulating hormone.";
 RL Mol. Endocrinol. 15:378-389(2001).
 RN [11]
 RP VARIANT ILE-20.
 RX MEDLINE=99318093; PubMed=10391209; DOI=10.1038/10290;
 RA Cargill M., Altshuler D., Ireland J., Sklar P., Ardlie K., Patil N.,
 RA Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L.,
 RA Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.Q.,
 RA Lander E.S.;
 RT "Characterization of single-nucleotide polymorphisms in coding regions
 RT of human genes.";
 RL Nat. Genet. 22:231-238(1999).
 RN [12]
 RP ERRATUM.
 RA Cargill M., Altshuler D., Ireland J., Sklar P., Ardlie K., Patil N.,
 RA Shaw N., Lane C.R., Lim E.P., Kalyanaraman N., Nemesh J., Ziaugra L.,
 RA Friedland L., Rolfe A., Warrington J., Lipshutz R., Daley G.Q.,
 RA Lander E.S.;
 RL Nat. Genet. 23:373-373(1999).
 CC -!- FUNCTION: Stimulates development of follicle and spermatogenesis
 CC in the reproductive organs.
 CC -!- SUBUNIT: Heterodimer of a common alpha chain and a unique beta
 CC chain which confers biological specificity to thyrotropin,
 CC lutropin, follitropin and gonadotropin.
 CC -!- SUBCELLULAR LOCATION: Secreted protein.
 CC -!- PHARMACEUTICAL: Available under the names Gonal-F or Metrodin HP
 CC (Serono) and Puregon (Organon). Used in the treatment of
 CC infertility in women with proven hypopituitarism or who have not
 CC responded to clomifene; or in superovulation treatment for
 CC assisted conception (such as in vitro fertilization). Metrodin HP
 CC is also used in the treatment of hypogonadotrophic hypogonadism in
 CC men for the stimulation of spermatogenesis.
 CC -!- SIMILARITY: Belongs to the glycoprotein hormones beta chain
 CC family.
 CC -----
 CC Copyrighted by the UniProt Consortium, see <http://www.uniprot.org/terms>
 CC Distributed under the Creative Commons Attribution-NoDerivs License
 CC -----
 DR EMBL; M16647; AAA52476.1; -; Genomic_DNA.

DR EMBL; M16646; AAA52476.1; JOINED; Genomic_DNA.
 DR EMBL; M24540; AAA52470.1; -; Genomic_DNA.
 DR EMBL; M24539; AAA52470.1; JOINED; Genomic_DNA.
 DR EMBL; M54914; AAB02868.1; -; Genomic_DNA.
 DR EMBL; M54913; AAB02868.1; JOINED; Genomic_DNA.
 DR EMBL; AL358944; -; NOT_ANNOTATED_CDS; Genomic_DNA.
 DR PIR; A40920; FTHUB.
 DR PDB; 1FL7; X-ray; B/D=19-129.
 DR PDB; 1XWD; X-ray; B/E=19-129.
 DR GlycoSuiteDB; P01225; -.
 DR Ensembl; ENSG00000131808; Homo sapiens.
 DR HGNC; HGNC:3964; FSHB.
 DR MIM; 136530; gene.
 DR GO; GO:0005576; C:extracellular region; NAS.
 DR GO; GO:0005625; C:soluble fraction; TAS.
 DR GO; GO:0016913; F:follicle-stimulating hormone activity; NAS.
 DR GO; GO:0046982; F:protein heterodimerization activity; NAS.
 DR GO; GO:0007292; P:female gamete generation; TAS.
 DR GO; GO:0001541; P:ovarian follicle development; NAS.
 DR GO; GO:0007565; P:pregnancy; TAS.
 DR GO; GO:0007165; P:signal transduction; TAS.
 DR GO; GO:0007283; P:spermatogenesis; NAS.
 DR InterPro; IPR006208; Cys_knot.
 DR InterPro; IPR002400; GF_cysknot.
 DR InterPro; IPR001545; Gly_hormoneB.
 DR PANTHER; PTHR11515; Gly_hormoneB; 1.
 DR Pfam; PF00007; Cys_knot; 1.
 DR PRINTS; PR00438; GFCYSKNOT.
 DR SMART; SM00068; GHB; 1.
 DR PROSITE; PS00261; GLYCO_HORMONE_BETA_1; 1.
 DR PROSITE; PS00689; GLYCO_HORMONE_BETA_2; 1.
 KW 3D-structure; Direct protein sequencing; Glycoprotein; Hormone;
 KW Pharmaceutical; Polymorphism; Signal.
 FT SIGNAL 1 18
 FT CHAIN 19 129 Follitropin beta chain.
 FT /FTId=PRO_0000011711.
 FT CARBOHYD 25 25 N-linked (GlcNAc . . .).
 FT CARBOHYD 42 42 N-linked (GlcNAc . . .).
 FT DISULFID 21 69
 FT DISULFID 35 84
 FT DISULFID 38 122
 FT DISULFID 46 100
 FT DISULFID 50 102
 FT DISULFID 105 112
 FT VARIANT 20 20 S -> I (in dbSNP:6170).
 FT /FTId=VAR_012047.
 FT STRAND 22 32
 FT TURN 33 36
 FT STRAND 37 53
 FT STRAND 56 57
 FT TURN 60 61
 FT STRAND 62 62
 FT STRAND 68 81
 FT STRAND 84 84
 FT TURN 85 86
 FT STRAND 87 87
 FT STRAND 90 103
 FT STRAND 105 105
 FT TURN 107 109
 FT STRAND 110 114
 FT STRAND 117 117

FT TURN 119 120
 FT STRAND 123 123
 SQ SEQUENCE 129 AA; 14700 MW; 9D2AF00DD76B8E2B ,CRC64; 5

Query Match 49.5%; Score 630; DB 1; Length 129;
 Best Local Similarity 100.0%; Pred. No. 4.8e-50;
 Matches 111; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 117 NSCELTNITIAIEKEEERFCISINTTWCAGYCYTRDLVYKDPARPKIQKTCTFKELVYET 176
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 19 NSCELTNITIAIEKEEERFCISINTTWCAGYCYTRDLVYKDPARPKIQKTCTFKELVYET 78

 Qy 177 VRVPGCAHHADSLYTPVATQCHCGKCDSDSTDCTVRGLGPSYCSFGEMKE 227
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 79 VRVPGCAHHADSLYTPVATQCHCGKCDSDSTDCTVRGLGPSYCSFGEMKE 129

RESULT 1

GLHA_HUMAN

ID GLHA_HUMAN STANDARD; PRT; 116 AA.
AC P01215;
DT 21-JUL-1986, integrated into UniProtKB/Swiss-Prot.
DT 21-JUL-1986, sequence version 1.
DT 07-FEB-2006, entry version 69.
DE Glycoprotein hormones alpha chain precursor (Anterior pituitary
DE glycoprotein hormones common alpha subunit) (Follitropin alpha chain)
DE (Follicle-stimulating hormone alpha chain) (FSH-alpha) (Lutropin alpha
DE chain) (Luteinizing hormone alpha chain) (LSH-alpha) (Thyrotropin
DE alpha chain) (Thyroid-stimulating hormone alpha chain) (TSH-alpha)
DE (Choriogonadotropin alpha chain) (Chorionic gonadotrophin alpha
DE subunit) (CG-alpha).
GN Name=CGA;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Euarchontoglires; Primates; Catarrhini; Hominidae;
OC Homo.
OX NCBI_TaxID=9606;
RN [1]
RP NUCLEOTIDE SEQUENCE.
RX MEDLINE=80011660; PubMed=481597;
RA Fiddes J.C., Goodman H.M.;
RT "Isolation, cloning and sequence analysis of the cDNA for the alpha-
RT subunit of human chorionic gonadotropin.";
RL Nature 281:351-356(1979).
RN [2]
RP NUCLEOTIDE SEQUENCE.
RX MEDLINE=94254248; PubMed=8196184;
RA Miyoshi I., Kasai N., Hayashizaki Y.;
RT "Structure and regulation of human thyroid-stimulating hormone (TSH)
RT gene.";
RL Nippon Rinsho 52:940-947(1994).
RN [3]
RP NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA].
RC TISSUE=Placenta;
RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899,
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length human
RT and mouse cDNA sequences.";
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN [4]
RP NUCLEOTIDE SEQUENCE OF 1-98.
RX MEDLINE=82267643; PubMed=6286817;

RA Fiddes J.C., Goodman H.M.;
 RT "The gene encoding the common alpha subunit of the four human
 RT glycoprotein hormones.";
 RL J. Mol. Appl. Genet. 1:3-18(1981).
 RN [5]
 RP PROTEIN SEQUENCE OF 1-24.
 RX MEDLINE=81117268; PubMed=7462224;
 RA Birken S., Fetherston J., Canfield R.E., Boime I.;
 RT "The amino acid sequences of the prepeptides contained in the alpha
 RT and beta subunits of human choriogonadotropin.";
 RL J. Biol. Chem. 256:1816-1823(1981).
 RN [6]
 RP PROTEIN SEQUENCE OF 28-116.
 RX MEDLINE=77243687; PubMed=890569;
 RA Sairam M.R., Li C.H.;
 RT "Human pituitary thyrotropin. The primary structure of the alpha and
 RT beta subunits.";
 RL Can. J. Biochem. 55:755-760(1977).
 RN [7]
 RP PROTEIN SEQUENCE OF 28-116.
 RX MEDLINE=72242988; PubMed=5065401;
 RA Sairam M.R., Papkoff H., Li C.H.;
 RT "Human pituitary interstitial cell stimulating hormone: primary
 RT structure of the alpha-subunit.";
 RL Biochem. Biophys. Res. Commun. 48:530-537(1972).
 RN [8]
 RP PROTEIN SEQUENCE, AND SEQUENCE REVISION.
 RA Keutmann H.T., Williams R.M., Bishop W.H., Ryan R.J.;
 RT "Structure of human lutenizing hormone.";
 RL Fed. Proc. 37:1828-1828(1978).
 RN [9]
 RP PROTEIN SEQUENCE OF 25-116.
 RC TISSUE=Pituitary;
 RX MEDLINE=76005558; PubMed=1158880;
 RA Rathnam P., Saxena B.B.;
 RT "Primary amino acid sequence of follicle-stimulating hormone from
 RT human pituitary glands. I. alpha subunit.";
 RL J. Biol. Chem. 250:6735-6746(1975).
 RN [10]
 RP PROTEIN SEQUENCE OF 28-116.
 RX MEDLINE=74262937; PubMed=4835135;
 RA Shome B., Parlow A.F.;
 RT "Human follicle stimulating hormone (hFSH): first proposal for the
 RT amino acid sequence of the alpha-subunit (hFSHa) and first
 RT demonstration of its identity with the alpha-subunit of human
 RT luteinizing hormone (hLHa).";
 RL J. Clin. Endocrinol. Metab. 39:199-202(1974).
 RN [11]
 RP PROTEIN SEQUENCE OF 25-116.
 RX MEDLINE=75211304; PubMed=1150658;
 RA Morgan F.J., Birken S., Canfield R.E.;
 RT "The amino acid sequence of human chorionic gonadotropin. The alpha
 RT subunit and beta subunit.";
 RL J. Biol. Chem. 250:5247-5258(1975).
 RN [12]
 RP PROTEIN SEQUENCE OF 25-116.
 RX MEDLINE=74011266; PubMed=4745444;
 RA Bellisario R., Carlsen R.B., Bahl O.P.;
 RT "Human chorionic gonadotropin. Linear amino acid sequence of the alpha
 RT subunit.";
 RL J. Biol. Chem. 248:6796-6809(1973).

RN [13]
 RP PRELIMINARY ASSIGNMENT OF DISULFIDE BONDS.
 RX MEDLINE=81021713; PubMed=6774759; DOI=10.1016/0005-2795(80)90084-7;
 RA Fujiki Y., Rathnam P., Saxena B.B.;
 RT "Studies on the disulfide bonds in human pituitary follicle-
 RT stimulating hormone.";
 RL Biochim. Biophys. Acta 624:428-435(1980).
 RN [14]
 RP PRELIMINARY ASSIGNMENT OF DISULFIDE BONDS.
 RX MEDLINE=81006887; PubMed=7410374;
 RA Mise T., Bahl O.P.;
 RT "Assignment of disulfide bonds in the alpha subunit of human chorionic
 RT gonadotropin.";
 RL J. Biol. Chem. 255:8516-8522(1980).
 RN [15]
 RP STRUCTURE OF CARBOHYDRATES.
 RX MEDLINE=91122088; PubMed=1991473;
 RA Weisshaar G., Hiyama J., Renwick A.G.C., Nimtze M.;
 RT "NMR investigations of the N-linked oligosaccharides at individual
 RT glycosylation sites of human lutropin.";
 RL Eur. J. Biochem. 195:257-268(1991).
 RN [16]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RX MEDLINE=94261179; PubMed=8202136; DOI=10.1038/369455a0;
 RA Lapthorn A.J., Harris D.C., Littlejohn A., Lustbader J.W.,
 RA Canfield R.E., Machin K.J., Morgan F.J., Isaacs N.W.;
 RT "Crystal structure of human chorionic gonadotropin.";
 RL Nature 369:455-461(1994).
 RN [17]
 RP STRUCTURE BY NMR.
 RX MEDLINE=97054614; PubMed=8898911;
 RA de Beer T., van Zuylen C.W.E.M., Leeftang B.R., Haard K., Boelens R.,
 RA Kaptein R., Kamerling J.P., Vliegthart J.F.G.;
 RT "NMR studies of the free alpha subunit of human chorionic
 RT gonadotropin. Structural influences of N-glycosylation and the beta
 RT subunit on the conformation of the alpha subunit.";
 RL Eur. J. Biochem. 241:229-242(1996).
 CC -!- SUBUNIT: Heterodimer of a common alpha chain and a unique beta
 CC chain which confers biological specificity to thyrotropin,
 CC lutropin, follitropin and gonadotropin.
 CC -!- SUBCELLULAR LOCATION: Secreted protein.
 CC -!- SIMILARITY: Belongs to the glycoprotein hormones alpha chain
 CC family.
 CC -----
 CC Copyrighted by the UniProt Consortium, see <http://www.uniprot.org/terms>
 CC Distributed under the Creative Commons Attribution-NoDerivs License
 CC -----
 DR EMBL; J00152; AAD13690.1; -; Genomic_DNA.
 DR EMBL; J00150; AAD13690.1; JOINED; Genomic_DNA.
 DR EMBL; J00151; AAD13690.1; JOINED; Genomic_DNA.
 DR EMBL; S70585; AAB30827.1; -; Genomic_DNA.
 DR EMBL; S70583; AAB30827.1; JOINED; Genomic_DNA.
 DR EMBL; S70584; AAB30827.1; JOINED; Genomic_DNA.
 DR EMBL; BC020782; AAH20782.1; -; mRNA.
 DR EMBL; BC055080; AAH55080.1; -; mRNA.
 DR EMBL; V00518; CAA23777.1; -; mRNA.
 DR PIR; A93213; TTHUAP.
 DR PDB; 1DZ7; NMR; A=25-116.
 DR PDB; 1E9J; NMR; A=25-116.
 DR PDB; 1FL7; X-ray; A/C=25-116.
 DR PDB; 1HCN; X-ray; A=25-116.

DR PDB; 1HD4; NMR; A=25-116.
 DR PDB; 1HRP; X-ray; A=25-116.
 DR PDB; 1QFW; X-ray; A=25-116.
 DR PDB; 1XUL; Model; A=25-116.
 DR PDB; 1XWD; X-ray; A/D=25-116.
 DR GlycoSuiteDB; P01215; -.
 DR Ensembl; ENSG00000135346; Homo sapiens.
 DR H-InvDB; HIX0006048; -.
 DR HGNC; HGNC:1885; CGA.
 DR MIM; 118850; gene.
 DR LinkHub; P01215; -.
 DR GO; GO:0005625; C:soluble fraction; TAS.
 DR GO; GO:0005179; F:hormone activity; TAS.
 DR GO; GO:0007267; P:cell-cell signaling; TAS.
 DR GO; GO:0007165; P:signal transduction; TAS.
 DR InterPro; IPR002400; GF_cysknot.
 DR InterPro; IPR000476; Glyco_hormone.
 DR PANTHER; PTHR11509; Glyco_hormone; 1.
 DR Pfam; PF00236; Hormone_6; 1.

Query Match 50.5%; Score 643; DB 1; Length 116;
 Best Local Similarity 100.0%; Pred. No. 2.7e-51;
 Matches 116; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

Qy      1 MDYYRKYAAIFLVTL SVFLHVLH SAPDVQDC PECTLQENPFFSQPGAPILQCMGCCFSRA 60
          |||
Db      1 MDYYRKYAAIFLVTL SVFLHVLH SAPDVQDC PECTLQENPFFSQPGAPILQCMGCCFSRA 60

Qy      61 YPTPLRSKKTMLVQKNVTSESTCCVAKSYNRVTVMGGFKVENHTACHCSTCYHKS 116
          |||
Db      61 YPTPLRSKKTMLVQKNVTSESTCCVAKSYNRVTVMGGFKVENHTACHCSTCYHKS 116
  
```